

REMARKS / DISCUSSION OF ISSUES

The present amendment is submitted in response to the Office Action mailed September 3, 2009. In view of the remarks to follow, reconsideration and allowance of this application are respectfully requested.

Status of Claims

Claims 1-12 and 14-21 remain in this application. Claims 1, 4-12, 14-15, 17, 19 and 21 have been amended. Claim 13 has been cancelled without prejudice or disclaimer. The claims in general are amended for one or more non-statutory reasons, for example to correct one or more informalities or obvious errors, remove figure label numbers, remove unnecessary limitations, and /or replace European claim phraseology with U.S. claim language having the same meaning. The claims are not believed to be narrowed in scope and no new matter is added.

Claim Rejections under 35 USC 102

In the Office Action, Claims 1-2, 4 and 18-21 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,051,340 ("Tyan"). Applicants respectfully traverse the rejections.

Claims 1-2, 4 and 18-21 are allowable

Independent Claim 1 has been amended herein to better define Applicant's invention over Tyan. Claim 13 is herewith cancelled, without prejudice, and claim 1 has been amended to incorporate the subject matter of now-cancelled claim 3. It is respectfully submitted that independent Claim 1, as herewith amended, now recites limitations and/or features which are not disclosed by Farrall. Therefore, the cited portions of Tyan do not anticipate claim 1, because the cited portions of Tyan do not teach every element of claim 1. For example, the cited portions of Tyan do not disclose or suggest, "*a first interface layer sandwiched between said information layer and the substrate, said first information layer comprising a growth-dominated phase-change material for forming marks and spaces representing an encoded data pattern, wherein said recording material is an alloy comprising at least two materials of*

the group of materials containing Ge, Sb, Te, In, Se, Bi, Ag, Ga, Sn, Pb, As, and a second interface layer acting as a barrier to etching, said second interface layer being sandwiched between said information layer and the substrate", as recited in claim 1 [Emphasis Added]. The second interface layer of the invention, located between the substrate layer and the interface layer, i.e not facing the incident laser light, preferably has a high resistance to the etching liquid such that this second interface acts as a natural barrier. The depth of the etched grooves and other relief structure is determined by the thickness of the information layer and the first interface layer.

In contrast to claim 1, the cited portions of Tyan do not disclose an interface layer. Applicants refer the Examiner to Fig. 1a of Tyan which illustrates a phase-change optical recording element before exposure. The element comprises a support 10, having thereon a phase change optical recording layer 20. It is respectfully submitted that neither the support 10 nor the recording layer 20 constitute an interface layer. Further, none of the other figures of Tyan illustrate an interface layer.

With respect to the rejection of claim 13, the subject matter of which has been incorporated into independent claim 1, the Examiner cites secondary reference DePuydt for allegedly disclosing a dielectric and a cap layer on either side of the mask layer when forming a stamper. See Office Action, page 3. Assuming arguendo that DePuydt teaches a single interface layer, it is submitted that the combination of Tyan and DePuydt fail to teach both a first and a second interface layer.

Accordingly, the cited portions of Tyan and DePuydt, in any reasonable combination, do not teach or suggest "*a first interface layer sandwiched between said information layer and the substrate,.....and a second interface layer acting as a barrier to etching, said second interface layer being sandwiched between said first information layer and the substrate",* as recited in claim 1. Therefore, claim 1 is allowable and claims 2 and 4 are allowable, at least by virtue of their respective dependence from claim 1.

In the Office Action, claim 18 is rejected over Tyan. The Examiner directs the Applicant to the examples provided in Tyan for allegedly teaching the method steps

enumerated in claim 18. Upon a close review of the examples disclosed in Tyan, Applicant respectfully asserts that the recitations of claim 18 are clearly not met. Claim 18 recites five steps for manufacturing a stamper for replication a high-density relief structure. These steps include an illuminating step, a rinsing step, a sputter-deposition step, a step of galvanically growing the sputter deposited layer and a separating step. Specifically, Claim 18 recites

- *illuminating a master substrate as claimed in claim 1 with a modulated focused radiation beam,*
- *rinsing the illuminated master substrate layer with a developer, being one of alkaline or an acid liquid, preferably selected of the group of solutions of NaOH, KOH, HCl and HNO₃ in water, such that a desired relief structure results,*
- *sputter-deposition of a metallic layer, in particular a Nickel layer,*
- *galvanically growing the sputter-deposited layer to the desired thickness forming a stamper,*
- *separating the master substrate from the stamper.*

It is respectfully submitted that Tyan does not teach at least the step of *rinsing the illuminated master substrate layer with a developer, being one of alkaline or an acid liquid, preferably selected of the group of solutions of NaOH, KOH, HCl and HNO₃ in water, such that a desired relief structure results*. Instead, Tyan teaches in accordance with the first and second examples, that the disk is rinsed in distilled water. Tyan teaches in accordance with the third example that the disk is rinsed sequentially in a 0.05 wt % Triton X-100 solution and in distilled water. Tyan teaches in accordance with the remaining examples that the disk is rinsed sequentially in various weights (e.g., 0.025, 0.05) wt % of a Fluorad FC-99 solution and in distilled water. Thus, Applicant submits that this step is neither disclosed nor suggested by Tyan.

Applicant further submits that Tyan does not teach at least the step of *sputter-deposition of a metallic layer, in particular a Nickel layer*. Tyan teaches in accordance with the first example that a thin-film, about 70 nm in thickness on a glass support, of Sb-Sn-In alloy with atomic composition of 60%-25%-15% was prepared by RF-sputtering. Tyan also

teaches in accordance with the ninth example that the polymer-coated disk replicate then had a thin film of the Sb-Sn-In alloy sputtered onto it to provide reflectivity and conductivity for subsequent optical microscopy and SEM observation. Thus, Applicant submits that this step is neither disclosed nor suggested by Tyan.

Applicant further submits that Tyan does not teach at least the step of *galvanically growing the sputter-deposited layer to the desired thickness forming a stamper, sputter-deposition of a metallic layer, in particular a Nickel layer*. It is respectfully submitted that Tyan is silent with regard to this step. Thus, Applicant submits that this step is neither disclosed nor suggested by Tyan.

Applicant further submits that Tyan does not teach at least the step of *separating the master substrate from the stamper*. Tyan discloses in part with regard to example 9 that “the polymer film was crosslinked via UV exposure and the disks were separated at the metal alloy:polymer interface. Applicant submits that the separation taught in Tyan is not directed to separating the master substrate from the stamper. Thus, Applicant submits that this step is neither disclosed nor suggested by Tyan.

Accordingly, since the cited reference does not disclose or suggest the steps of:

- *rinsing the illuminated master substrate layer with a developer, being one of an alkaline or an acid liquid, preferably selected of the group of solutions of NaOH, KOH, HCl and HNO₃ in water, such that a desired relief structure results,*
- *sputter-deposition of a metallic layer, in particular a Nickel layer,*
- *galvanically growing the sputter-deposited layer to the desired thickness forming a stamper,*
- *separating the master substrate from the stamper.*

as recited by Applicant’s Claim 18, it is respectfully requested that the rejection under 35 USC 102(b) with respect to independent Claim 18 be withdrawn.

Further, since claims 19-21 are dependent on Claim 18, they too are believed to be patentably distinct over Tyan for at least the reasons given above for Claim 18. Accordingly, it is respectfully requested that the rejection under 35 USC 102(b) with respect to dependent Claims 19-21 be withdrawn.

Claim 3 is allowable

In the Office Action, Claim 3 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Tyan. Applicants respectfully traverse the rejection.

As explained above, the cited portions of Tyan do not disclose or suggest each and every element of claim 1 from which claim 3 depends. Hence, claim 3 is allowable at least by virtue of its respective dependence from claim 1.

Claims 5, 8-11 and 13-14 are allowable

In the Office Action, Claims 5, 8-11 and 13-14 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Tyan in view of U.S. Patent No. 5,051,340 ("DePuydt").
Applicants respectfully traverse the rejections.

As explained above, the cited portions of Tyan do not disclose or suggest each and every element of claim 1 from which claims 5, 8-11 and 13-14 depend. DePuydt does not disclose each of the elements of claim 1 that are not disclosed by Tyan. Thus, the cited portions of Tyan and DePuydt, individually or in combination, do not disclose or suggest "a first interface layer sandwiched between said information layer and the substrate,.....and a second interface layer acting as a barrier to etching, said second interface layer being sandwiched between said first information layer and the substrate", as recited in claim 1.

Hence, for at least the same reasons given for Claims 1, Claims 5, 8-11 and 13-14 are believed to recite statutory subject matter under 35 USC 103(a) and claims 5, 8-11 and 13-14 are allowable, at least by virtue of their respective dependence from claim 1.

Claims 6-7 are allowable

In the Office Action, Claims 6-7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Tyan in view of U.S. Patent No. 4,732,844 ("Ota"). Applicants respectfully traverse the rejections.

As explained above, the cited portions of Tyan do not disclose or suggest each and every element of claim 1 from which claims 6-7 depend. Ota does not disclose each of the elements of claim 1 that are not disclosed by Tyan. Thus, the cited portions of Tyan and Ota, individually or in combination, do not disclose or suggest "a first interface layer sandwiched between said information layer and the substrate,.....and a second interface layer acting as a barrier to etching, said second interface layer being sandwiched between said first information layer and the substrate", as recited in claim 1.

Hence, for at least the same reasons given for Claims 1, Claims 6-7 are believed to recite statutory subject matter under 35 USC 103(a) and claims 6-7 are allowable, at least by virtue of their respective dependence from claim 1.

Claim 12 is allowable

In the Office Action, Claim 12 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Tyan in view of JP 06-060440. Applicants respectfully traverse the rejection.

As explained above, the cited portions of Tyan do not disclose or suggest each and every element of claim 1 from which claim 12 depends. JP 06-060440 does not disclose each of the elements of claim 1 that are not disclosed by Tyan. Thus, the cited portions of Tyan and JP 06-060440, individually or in combination, do not disclose or suggest "a first interface layer sandwiched between said information layer and the substrate,.....and a second interface layer acting as a barrier to etching, said second interface layer being sandwiched between said first information layer and the substrate", as recited in claim 1.

Hence, for at least the same reasons given for Claims 1, Claim 12 is believed to recite statutory subject matter under 35 USC 103(a) and claim 12 is allowable, at least by virtue of its respective dependence from claim 1.

Claims 15-17 are allowable

In the Office Action, Claims 15-17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Tyan in view of U.S. Patent No. 6,709,801 (“Miyamoto”). Applicants respectfully traverse the rejections.

As explained above, the cited portions of Tyan do not disclose or suggest each and every element of claim 1 from which claims 15-17 depend. Miyamoto does not disclose each of the elements of claim 1 that are not disclosed by Tyan. Thus, the cited portions of Tyan and Miyamoto, individually or in combination, do not disclose or suggest, “*a first interface layer sandwiched between said information layer and the substrate,.....and a second interface layer acting as a barrier to etching, said second interface layer being sandwiched between said first information layer and the substrate*”, as recited in claim 1.

Hence, for at least the same reasons given for Claims 1, Claims 15-17 are believed to recite statutory subject matter under 35 USC 103(a) and claims 15-17 are allowable, at least by virtue of their respective dependence from claim 1.

Double Patenting

In the Office Action, Claims 1–21 stand provisionally rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1-25 of copending Application No. 10/599,834. The Examiner asserts that although the conflicting claims are not identical, they are not patentably distinct from each other because they cover the same master and method for making a master comprising a substrate, interlayer, mask, protective layer where the mask layer is a phase-change material and the master is formed by exposing the mask material, developing ni-plating and separating.

In response, a terminal disclaimer is being submitted herewith to overcome this rejection. The current application, along with copending Application No. 10/599,834, have

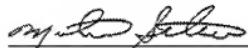
been previously commonly assigned to Koninklijke Philips Electronics N.V.

Conclusion

In view of the foregoing amendments and remarks, it is respectfully submitted that all claims presently pending in the application, namely, Claims 1-12 and 14-21 are believed to be in condition for allowance and patentably distinguishable over the art of record.

If the Examiner should have any questions concerning this communication or feels that an interview would be helpful, the Examiner is requested to call Mike Belk, Esq., Intellectual Property Counsel, Philips Electronics North America, at 914-945-6000.

Respectfully submitted,



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